THE LAND MOLLUSKS OF THE BELGIAN CONGO.*

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The American Museum of Natural History has issued a series of reports on its Congo Expedition, all characterized by fullness of treatment and abundant and beautiful illustrations. Other similar reports are in course of preparation. The completed series will constitute a guide to the zoology of equatorial Africa, full of interest for the general naturalist and evolutionist, as well as for specialists in the several departments. Among these reports one of the most interesting is that on the Land Mollusks, by Dr. Pilsbry. The presentation of the subject is so clear and complete, and the illustrations are so good, that the reader has no difficulty in understanding the characters of the fauna, though he may have known very little about it before. To one accustomed to the mollusks of America or Europe, the tropical African series seems to belong to another world. Even when there is a certain similarity of form, as among the Helicidæ, the anatomy shows that we are dealing with strange generic types. The closest affinity is of course with the fauna of the Oriental region, yet even that is remote, although some doubtless very ancient genera range through tropical Asia and Africa. There is here a rather close parallel between the distribution of the land mollusks and the fresh-water fishes. Certain genera of fishes, but with distinct species, occur in the fresh waters of India and of tropical Africa, but the latter region has many remarkable types of its own, in some cases much more allied to neotropical genera than to anything in India. It is evident that Africa, the land of the okapi and the tsetse fly, is a storehouse of ancient groups of animals, some of which at least, were formerly much more widely spread. While we thus emphasize the probable antiquity of various African groups or genera, we find remarkable specific diversity, apparently indicating that

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the evolutionary process has been active during the latest geological periods. While the Belgian Congo has of course been only very imperfectly explored for land mollusks, about 500 localities are represented, and about 390 species and races have been found. Of these 390 forms, I find 214 reported from one locality only. The case is even stronger than these figures suggest, as when two or more localities are given, they are often only short distances apart, or perhaps in some cases different names for essentially the same place. Again, of 214 species and subspecies in the collection reported on, 160 required new specific, racial or varietal names. When we consider the amount of specific and racial diversity thus indicated, making full allowances for our imperfect knowledge of the distribution of the recorded species, it becomes evident that the total existing fauna must amount to some thousands at least.

It is well known that the high mountains of tropical Africa are inhabited by certain organisms, especially plants, very closely related to Palæarctic species. In the case of the plants, at least, it is possible that the seeds were brought by birds. Among the mollusks, it is interesting to find a *Vitrina* high up on Mt. Ruwenzori, near the line of perpetual snow. But after all this is not a typical *Vitrina;* it differs in the less extensive mantle, the sculpture of the shell, and in the teeth. Dr. Pilsbry accordingly establishes for it a subgenus *Calidivitrina*,—the name rather unfortunately chosen, since it is not an inhabitant of the hot lowlands. On comparing the Congo mollusks with those of tropical Asia, some puzzling questions arise. Thus among the slugs there are such similarities that Godwin-Austen formerly placed both African and Indian species in his genus *Africarion*. He now agrees that the Indian slugs constitute a quite distinct genus (*Pseudaustonia*), and it seems at least probable that the Indian series has undergone an evolution similar to, but quite independent of, the African. These conclusions could never have been reached without a study of the soft anatomy, and thus we are led to treat with some caution those cases of similarity among the smaller shells, the anatomy being unknown. There is, for example, a striking resemblance between some of the African and Oriental species of the *Gulella*

species, but they may well represent independent developments, especially since they also superficially resemble Pupillidæ, to which they are not at all related. Thus the tendency of modern research will probably be to emphasize rather than diminish the separateness of the Ethiopian fauna.

It is rather a shock, at first, to see the African slugs heretofore called *Veronicella* or *Vaginula* referred to *Lævicaulis* and *Pleuroprocta*, names proposed several years ago by Simroth. It can hardly be doubted, however, that the Veronicellidæ must be held to include a number of genera, in spite of the great external similarity. Dr. Pilsbry is in error, I think, in calling the family Vaginulidæ, on the stated ground that the type of *Veronicella* has not been rediscovered. As a matter of fact the actual specimen described by Blainville is still to be seen in the British Museum, as was explained in Conchologist, 1893, pp. 43–44. It was collected by Sloane in Jamaica, and is properly called *Veronicella sloanii* (Cuvier).

PUBLICATIONS RECEIVED.

The Journal of Conchology, Aug., 1920, Vol. 16, No. 4.

Census Authentications. By the late W. D. Roebuck, p. 101.

"Ground" Clausilias. By Rev. A. H. Cooke, p. 102.

Note on Conus chytreus Melvill. By A. T. Hopwood, p. 103.

Notes on Kentish Mollusca. By H. C. Huggins, p. 104.

The Land and Freshwater Mollusca of Audruicq, Pas-de-Calais. By Jno. W. Taylor, pp. 106–117.

Editorial Notes, p. 125.

The Non-marine Mollusca of Llandudno and District. By H. Beeston, pp. 128–132.

Proceedings of the Malacological Society of London, Sept., 1920, Vol. 14.

Notes on Marginella guttula Sowerby. By John Shirley, p. 51.